IN THE CLAIMS:

Please cancel Claim 67-99, 108, 111 and 112, without prejudice to or disclaimer of the subject matter recited therein. Please amend Claims 4, 19, 22, 25, 31, 35 and 42, as follows.

1-3. (Canceled)

4. (Currently Amended) A laser oscillating apparatus for generating a laser beam comprising:

a laser tube which is filled with a laser gas;

a waveguide which has a plurality of slots formed in a waveguide wall to emit electromagnetic waves; and

an electromagnetic wave passage for connecting said plurality of slots and said laser tube between said laser tube and said waveguide, and providing a predetermined distance between said wave guide and said laser tube so that electromagnetic waves emitted from said plurality of slots are formed into substantially plane-wave shape, said predetermined distance being equal to or greater than the half-wavelength of an electromagnetic wave introduced from said waveguide.

5. (Previously Presented) The apparatus according to claim 4, wherein said predetermined distance is an integral multiple of the half-wavelength of an electromagnetic wave introduced from said waveguide.

6. (Original) The apparatus according to claim 4, wherein an electromagnetic wave introduced from said waveguide is a microwave.

7. (Original) The apparatus according to claim 4, wherein said passage is made from a conductor.

8. (Original) The apparatus according to claim 7, wherein in at least a portion where said passage is in contact with said laser tube, said passage forms an air gap having an opening with a predetermined width over the length of said laser tube.

9. (Previously Presented) The apparatus according to claim 8, wherein said air gap is filled with a dielectric member.

10. (Previously Presented) The apparatus according to claim 9, wherein said dielectric member is comprised of a plurality of members having different dielectric constants.

11. (Original) The apparatus according to claim 8, wherein the width of said air gap is an integral multiple of the half-wave length of an electromagnetic wave introduced from said waveguide.

12. (Previously Presented) The apparatus according to claim 8, wherein only a distal end portion of said air gap is narrowed, and the opening of said air gap has the shape of a slit over the length of said laser tube.

13. (Original) The apparatus according to claim 8, wherein said air gap has wide portions wider than the other portion in the vicinities of distal end portions.

14. (Original) The apparatus according to claim 13, wherein the width of said wide portion is substantially equal to one of the wavelength and the half-wave length of an electromagnetic wave introduced from said waveguide.

15. (Original) The apparatus according to claim 13, wherein the width of said wide portion changes along a longitudinal direction of said air gap on the basis of an intensity distribution of electromagnetic waves emitted from said slots.

16. (Original) The apparatus according to claim 4, wherein dielectric lenses each having a curved shape corresponding to said slot are formed in said passage in at least a portion above said plurality of slots.

17. (Original) The apparatus according to claim 4, wherein said waveguide is filled with a dielectric member.

18. (Previously Presented) The apparatus according to claim 4, wherein the laser gas is one of at least one inert gas selected from the group consisting of Kr, Ar, He and Ne, and a gas mixture of the inert gas and F_2 gas.

19. (Currently Amended) A laser oscillating apparatus for generating a laser beam comprising:

a laser tube which is filled with a laser gas; and

a waveguide which has a plurality of slots formed in a waveguide wall and introduces electromagnetic waves into said laser tube through said slots,

wherein the width of longitudinal end portions of each of said slots are made larger than the width of a central ~~portions~~ portion thereof.

20. (Original) The apparatus according to claim 19, wherein said end portions have circular shapes with a diameter larger than the width of said central portion.

21. (Previously Presented) The apparatus according to claim 19, wherein the laser gas is one of at least one inert gas selected from the group consisting of Kr, Ar, He and Ne, and a gas mixture of the inert gas and F_2 gas.

22. (Currently Amended) A laser oscillating apparatus for generating a laser beam comprising:

a laser tube which is filled with a laser gas; and

a waveguide which has a plurality of slots formed in a waveguide wall and introduces electromagnetic waves into said laser tube through said slots,

wherein said slots are formed apart from a central axis along a longitudinal direction of said waveguide and each of said slots is curved such that longitudinal end portions of the slot are closer to the central axis than a central portion of the slot.

23. (Previously Presented) The apparatus according to claim 22, wherein said electromagnetic waves are radiated from said waveguide in the direction of a long end face of said waveguide.

24. (Previously Presented) The apparatus according to claim 22, wherein the laser gas is one of at least one inert gas selected from the group consisting of Kr, Ar, He and Ne, and a gas mixture of the inert gas and F_2 gas.

25. (Currently Amended) A laser oscillating apparatus for generating a laser beam comprising:

a laser tube which is filled with a laser gas; and

a waveguide which has a plurality of slots formed in a waveguide wall and introduces electromagnetic waves into said laser tube through said slots,

wherein an air-gap of resonating electromagnetic waves to be radiated from said slot to increase radiation efficiency ~~structure~~ is formed in said waveguide wall in which said slots are formed.

26. (Previously Presented) The apparatus according to claim 25, wherein said air-gap structure includes an air-gap portion formed near end portions of said slots within a range from said end portions to a distance of $\lambda g/4$ (λg is the waveguide wavelength of the electromagnetic wave).

27. (Previously Presented) The apparatus according to claim 25, wherein said air-gap structure includes an air-gap portion formed near end portions of said slots within a range from said end portions to a distance of $\lambda g/2$ (λg is the waveguide wavelength of the electromagnetic wave).

28. (Previously Presented) The apparatus according to claim 25, wherein an air-gap portion of said air-gap structure in a central portion of one of said slots is made smaller than an air-gap portion near end portions of said slot.

29. (Previously Presented) The apparatus according to claim 25, wherein in a direction perpendicular to a longitudinal direction of said slots, said air-gap structure is formed with a width equal to an integral multiple of $\lambda g/2$ (λg is the waveguide wavelength of the electromagnetic wave).

30. (Previously Presented) The apparatus according to claim 25, wherein the laser gas is one of at least one inert gas selected from the group consisting of Kr, Ar, He and Ne, and a gas mixture of the inert gas and F_2 gas.

31. (Currently Amended) A laser oscillating apparatus for generating a laser beam comprising:

a laser tube which is filled with a laser gas; and

a waveguide which has a plurality of slots formed in a waveguide wall and introduces electromagnetic waves into said laser tube through said slots,

wherein each of said plurality of slots has a tapered shape on a cross section parallel to the direction of introduction of an electromagnetic wave, whose sectional shape narrows toward said laser tube.

32. (Canceled)

33. (Canceled)

34. (Previously Presented) The apparatus according to claim 31, wherein the laser gas is one of at least one inert gas selected from the group consisting of Kr, Ar, He and Ne, and a gas mixture of the inert gas and F_2 gas.

35. (Currently Amended) A laser oscillating apparatus for generating a laser beam comprising:

a laser tube which is filled with a laser gas; and

a waveguide which has a plurality of slots formed in a waveguide wall and introduces electromagnetic waves into said laser tube through said slots,

wherein the ~~width~~ widths of end portions in a longitudinal direction of each of said slots ~~is~~ are made smaller than the width of a central portion thereof.

36. (Previously Presented) The apparatus according to claim 35, wherein the laser gas is one of at least one inert gas selected from the group consisting of Kr, Ar, He and Ne, and a gas mixture of the inert gas and F_2 gas.

37. (Previously Presented) A laser oscillating apparatus for generating a laser beam comprising:

a laser tube which is filled with a laser gas; and

a waveguide which has a plurality of slots formed in a waveguide wall and introduces electromagnetic waves into said laser tube through said slots,

wherein an electromagnetic wave in said waveguide forms a standing wave and each of said slots is formed so as to make the center of the slot substantially coincident with a node of the standing wave.

38. (Canceled)

39. (Previously Presented) The apparatus according to claim 37, wherein said slots are formed in a line at a pitch equal to one of the wavelength or the half-wave length of an electromagnetic wave in said waveguide.

40. (Original) The apparatus according to claim 37, wherein an electromagnet wave introduced from said waveguide is a microwave.

41. (Previously Presented) The apparatus according to claim 37, wherein the laser gas is one of at least one inert gas selected from the group consisting of Kr, Ar, He and Ne, and a gas mixture of the inert gas and F_2 gas.

42. (Currently Amended) A laser oscillating apparatus for generating a laser beam comprising:

a laser tube which is filled with a laser gas;

a waveguide which has a plurality of slots formed in a waveguide wall and introduces electromagnetic waves into said laser tube through said slots; and

a shielding structure provided in said laser tube for shielding each of the electromagnetic waves emitted from said slots ~~in said laser tube~~ in order to prevent plasma generated by the electromagnetic waves from diffusing.

43. (Previously Presented) The apparatus according to claim 42, wherein said shielding structure is formed to prevent diffusion of the electromagnetic wave in a direction perpendicular to a longitudinal direction of said slots.

44. (Original) The apparatus according to claim 42, wherein said shielding structure comprises a metal wall spaced apart from said slots by a predetermined distance.

45. (Original) The apparatus according to claim 42, wherein said shielding structure is made from a mesh-like plate member.

46. (Original) The apparatus according to claim 42, wherein said shielding structure comprises a plurality of nozzle structures having predetermined openings.

47. (Previously Presented) The apparatus according to claim 46, wherein said nozzle is a passage of the laser gas.

48. (Previously Presented) The apparatus according to claim 42, wherein said shielding structure is formed by a magnetic field.

49. (Previously Presented) The apparatus according to claim 42, wherein the laser gas is one of at least one inert gas selected from the group consisting of Kr, Ar, He and Ne, and a gas mixture of the inert gas and F_2 gas.

50. (Previously Presented) A laser oscillating apparatus for generating a laser beam comprising:

a laser tube which is filled with a laser gas; and

a waveguide which has a plurality of slots formed in a waveguide wall and introduces electromagnetic waves into said laser tube through said slots,

wherein the width in a short-side direction of each of said slots is made smaller than the thickness of a sheath serving as a passage of the electromagnetic waves extending from an opening of each of said slots in said short-side direction.

51. (Original) The apparatus according to claim 50, wherein the width in said short-side direction is 10 to 100 μm.

52. (Previously Presented) The apparatus according to claim 50, wherein the laser gas is one of at least one inert gas selected from the group consisting of Kr, Ar, He and Ne, and a gas mixture of the inert gas and F_2 gas.

53. (Previously Presented) A laser oscillating apparatus for generating a laser beam comprising:

a laser tube which is filled with a laser gas; and

a waveguide which has a plurality of slots formed in a waveguide wall and introduces electromagnetic waves into said laser tube through said slots,

wherein a plurality of slots are arranged in the short-side direction of the waveguide to form a row of slots, and a plurality of the rows are disposed in the long-side direction of the waveguide.

54. (Canceled)

55. (Previously Presented) The apparatus according to claim 53, wherein a shielding structure for suppressing diffusion of plasma is formed inside said laser tube.

56. (Canceled)

57. (Previously Presented) The apparatus according to claim 53, wherein the laser gas is one of at least one inert gas selected from the group consisting of Kr, Ar, He and Ne, and a gas mixture of the inert gas and F_2 gas.

58. (Previously Presented) A laser oscillating apparatus for generating a laser beam comprising:

a laser tube which is filled with a laser gas; and

a pair of waveguides, each of which has a plurality of slots formed in a waveguide wall and introduces electromagnetic waves into said laser tube through said slots,

wherein said pair of waveguides sandwich said laser tube and are constructed such that intensity distributions of electromagnetic waves introduced therefrom are shifted from each other.

59. (Previously Presented) The apparatus according to claim 58, wherein the surfaces having said slots are short end faces of said waveguides, and said slots are formed in a line at equal intervals in a longitudinal direction of said slots.

60. (Previously Presented) The apparatus according to claim 59, wherein said waveguides are arranged such that slots corresponding to each other between the opposing surfaces are shifted relative to each other by a predetermined distance.

61. (Previously Presented) The apparatus according to claim 60, wherein said slots are formed at a pitch equal to half of a wavelength in said waveguides, and the predetermined distance is 1/4 of the wavelength.

62. (Previously Presented) The apparatus according to claim 60, wherein said slots are formed at a pitch equal to one wavelength in said waveguides, and the predetermined distance is half of said wavelength.

63. (Original) The apparatus according to claim 60, further comprising phase adjusting means for shifting phases of electromagnetic waves supplied into said waveguides relative to each other.

64. (Original) The apparatus according to claim 59, wherein each of said waveguides comprises tuning means for tuning an electromagnetic wave.

65. (Original) The apparatus according to claim 58, wherein an electromagnetic wave introduced from said waveguide is a microwave.

66. (Previously Amended) The apparatus according to claim 58, wherein the laser gas is one of at least one inert gas selected from the group consisting of Kr, Ar, He and Ne, and a gas mixture of the inert gas and F_2 gas.

67-108. (Canceled)

109. (Previously Presented) The apparatus according to Claim 53, wherein the width of said slots in end rows is smaller than the width of said slots near the center.

110. (Previously Presented) The apparatus according to Claim 53, wherein the length of said slots in end rows is smaller than the length of said slots near the center.

111-112. (Canceled)